E.O. Lawrence Berkeley National Laboratory
GRETINA MONTHLY PROGRESS REPORT
October, 2005

I. DEPUTY CONTRACT PROJ. MGR. ASSESSMENT

1. TECHNICAL AND PROGRAMMATIC PROGRESS AND ACCOMPLISHMENTS

- We have achieved the Level 1 milestone: CD-2A Approve Performance Baseline Range /CD-3A Approve Start of Construction for Long Lead-time Items
- We have completed the following level 3 milestones:
  - Detector Module Drawings Complete
  - Detector Module Procurement Specifications Complete
- Detector procurement:
  - LBNL procurement decided to do a new RFQ. The award of the first detector was originally scheduled for July 05. Probably now the order will be placed in Sept 05. This delay should not impact the Level 2 milestone, which has completion scheduled for the 4th quarter of FY06.
  - All forms for the detector RFQ have been completed.
  - The request for quotation was placed and we are expecting the Canberra/Eurisys response by August 8.
- The requirements for the LN system are completed.

2. ACTIONS

N/A

3. COST AND SCHEDULE STATUS

3.1 VARIANCE ANALYSIS AND PROJECT COST PERFORMANCE REPORTS

		k$	
	Sched	**Act**	**Variance**
MIE Design	1,631.9	1,474.1	157.8
MIE Phase A	1,368.0	1,368.0	- 0 -
OPC	1,200.0	1,174.9	25.1

Variance Statement:

N/A.

Project Impact:

These variances do not impact the MIE completion.

Corrective Action:

N/A

3.2 MILESTONE STATUS

Level	Milestone Description	Schedule Date	Completion Date
1	CD-2A Approve Performance Baseline Range /CD-3A Approve Start of Construction for Long Lead-time Items	FY05 –Q3	June/05
2	Award Detector Module Contract	FY05 – Q4	Sept/05
2	Design and Drawings of Mechanical Support Structure Complete	FY06 – Q1	
3	Preliminary Design of Mechanical Support Structure Complete	April/05	May/05
3	Detector Module Drawings Complete	April/05	June/05
3	Detector Module Procurement Specifications Complete	April/05	June/05
3	Electronic Requirement Document Complete	Aug/05	
3	Computing Systems Requirement Document Complete	Aug/05	May/05
3	Quarter Sphere Design Complete	Sept/05	

3.3 PROJECT CRITICAL PATH ANALYSIS

The critical path continues to be the production and delivery of the Detector Modules. Placement of the order for the first detector is anticipated to be Sept/2005.

II. DETAIL SUBSYSTEM STATUS

A. WBS 1.1. Mechanical

WBS 1.1.2 Mechanical Design

Technical Progress/Accomplishments

- Documentation of the Translation & Rotaion system design philosophy being developed and documented.
- A new design/drawing of the detector installation/removal tool is being developed.
- Vendor estimates for fabbing the quarter spheres will be reviewed at the Nov 2 Mech mtg. Last date for a vendor to submission of an estimate will be Oct 31.

- The P3 detector has been shipped back to Eurisys for repair of the faulty parts.

Significant Issues/Actions

N/A

WBS 1.1 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
410.4	294.1	116.3

Variance Discussion

Design of the mechanical support structure is being stretched out in an attempt to minimize the scheduled gap prior to the initiation of Production activities.

B. WBS 1.2 Detector Module

WBS 1.2.1 Procurement

Technical Progress/Accomplishments

N/A

Significant Issues/Actions

Placement of the order for the first module on Sept. 30th will have some impact of the overall schedule. Analysis is being performed to judge what the impact might be and to develop any needed strategies to mitigate if needed.

WBS 1.2.2 Test/Characterize Module 1

Technical Progress/Accomplishments

Effort on the characterization the detectors continued.

Significant Issues/Actions

N/A

WBS 1.2 Variance Analysis (Cumulative To-date) ($k)

	Sched	Act	Variance
Design	436.1	361.3	74.8
Phase A	1,368.0	1,368.0	- 0 -

Variance Discussion

Detector Engineering and Test efforts have run lower cost than planned to-date. Phase A schedule reflects the planned award of the first Detector Module.

C. WBS 1.3 Electronics

WBS 1.3.1 Requirement Document

Technical Progress/Accomplishments

The Requirements Document for electronics is being prepped for review.

Significant Issues/Actions

N/A

WBS 1.3 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
35.6	22.2	13.4

Variance Discussion

N/A

D. WBS 1.4 Computing Systems

WBS 1.4.1 Requirement document

Technical Progress/Accomplishments

- Development of system architecture is being initiated as resources are available.
- Worked on Online.c, which is a c-code file to interface processing code such as the signal decomposition and tracking to python code runOnline.py.
- Started processing with the interface, added preprocessing code for the raw data from the receiver,and began interfacing the signal decomp code.

- Evaluated candidate servers for use as processing nodes for prototype
- Developed a more detailed schedule for the signal decomposition work.

Significant Issues/Actions

N/A

WBS 1.4 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
11.2	44.7	(33.5)

Variance Discussion

Work in this area has been initiated ahead of plan as resources are available. No impact on schedule or cost .

E. WBS 1.6 Project Management

WBS 1.6.1 Management

Technical Progress/Accomplishments

- We received CD2A/3A. This is a level 1 milestone.
- Detector procurement:
  - In discussion with vendor as to the schedule impact of placing the first detector order on 9/30/05.
- Signal Decomposition: Initiated worked on a detailed plan for the next few months for end-to-end test and integration.

Significant Issues/Actions

N/A

WBS 1.6.2 General Project Expenses

Technical Progress/Accomplishments

N/A

Significant Issues/Actions

N/A

WBS 1.6 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
719.4	741.2	(21.8)

Variance Discussion

N/A

E. WBS 1.7 Environment, Safety and Health

WBS 1.7.1

Technical Progress/Accomplishments

Significant Issues/Actions

N/A

WBS 1.7 Variance Analysis (Cumulative To-date) ($k)

Sched	Act	Variance
19.2	10.6	9.4

Variance Discussion

The schedule anticipates costs for an ES&H review that has been handled in the normal process of divisional oversite. Thus, the costs associated with this task have not been incurred.

III. Research and Development Status

- Initiated work on a detailed plan for the next few months for end-to-end test and integration.

Electronics:

- We have received the order for a set of custom-made cables to connect the pre-amplifiers with the readout electronics. We are preparing to test them.
- Also, we are researching possible connectors to connect the detector module with the readout electronics and we are doing good progress.

CES CPU boards:

-- Last of required 3 ordered.
-- One back from repair but will require rework (probably return again to switzerland)

Significant Issues/Actions

N/A

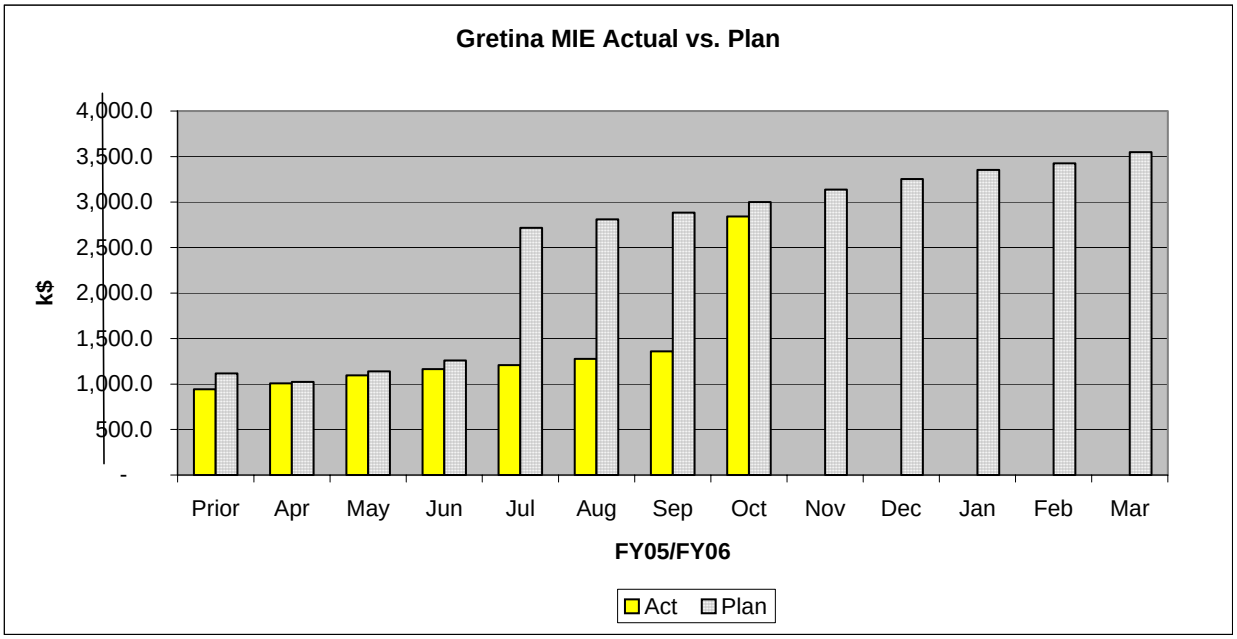
R&D Variance Analysis (Cumulative To-date) ($k)

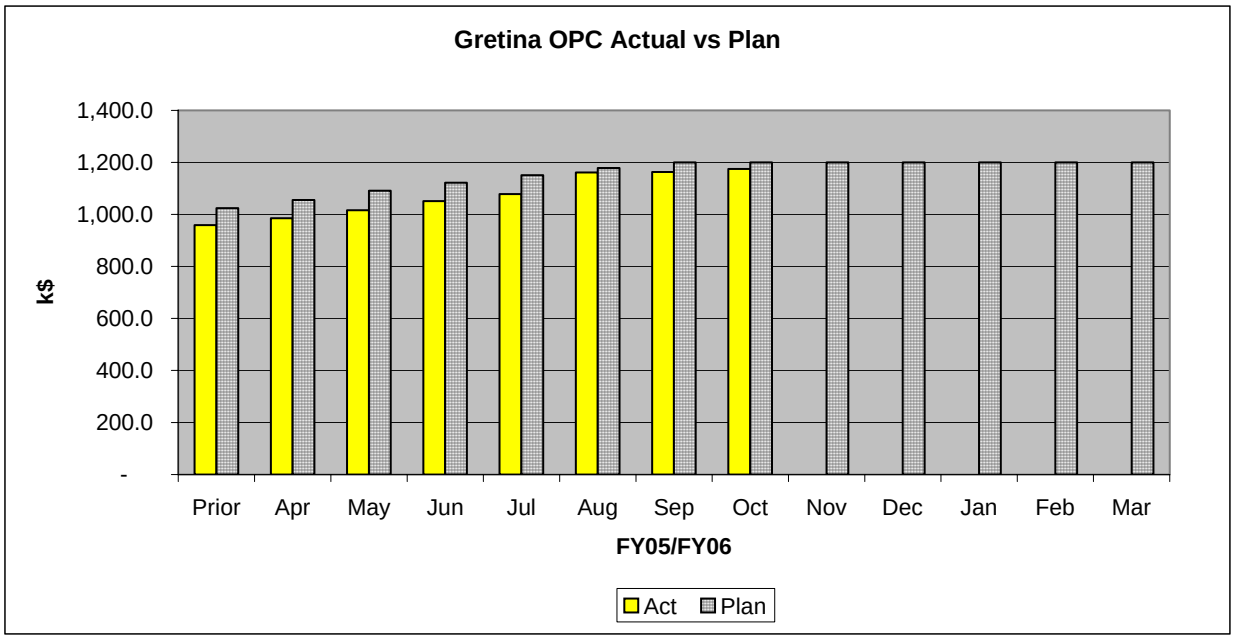
Sched	Act	Variance
1,200.0	1,174.9	24.9

Variance Discussion

N/A

IV. Cost Chart

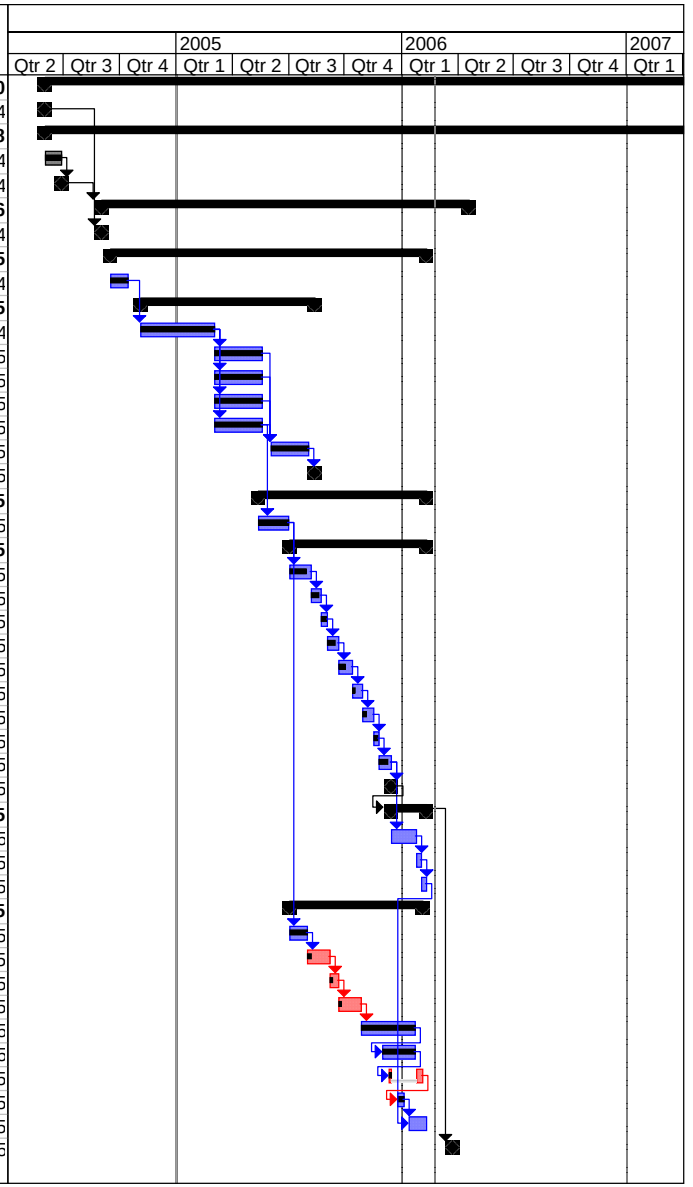




The above charts compare project-to-date budgeted cost with actual for the prior six month period and plan numbers for the succeeding six month period

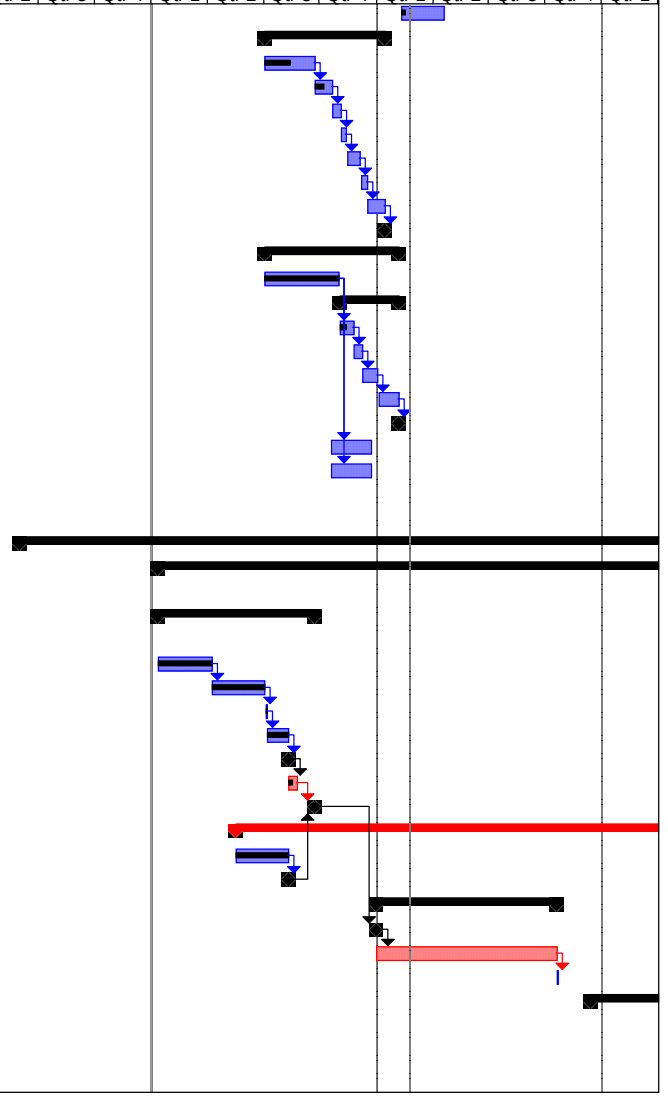
GRETINA Schedule October 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
1	**1**	**GRETINA**	**22%**	**3/1/04**	**9/16/10**
2		**Lvl 1: CD-1**	100%	3/1/04	3/1/04
3	**1.1**	**Mechanical**	**33%**	**3/1/04**	**4/3/08**
4	**1.1.1**	Requirement document	100%	3/1/04	3/26/04
5		**Lvl 3: Mech Req Doc Complete**	100%	3/26/04	3/26/04
6	**1.1.2**	**Design**	**61%**	**6/1/04**	**1/17/06**
7		**Lvl 4: Start Mech design**	100%	6/1/04	6/1/04
8	**1.1.2.1**	**Support structure**	**78%**	**6/15/04**	**11/9/05**
9		Define requirements/spec	100%	6/15/04	7/13/04
10		**Conceptual Design**	**100%**	**8/2/04**	**5/13/05**
11		General Conceptual Design	100%	8/2/04	11/30/04
12		Split Hemisphere	100%	12/1/04	2/16/05
13		Rotation System	100%	12/1/04	2/16/05
14		Translating Structure	100%	12/1/04	2/16/05
15		Site Interface	100%	12/1/04	2/16/05
16		Complete Conceptual Design	100%	3/1/05	5/2/05
17		**Lvl 3: Conceptual Design Review Complete**	100%	5/13/05	5/13/05
18		**Final design & Drawings**	**60%**	**2/9/05**	**11/9/05**
19		General Final Design	100%	2/9/05	3/31/05
20		**Quarter Spheres**	**45%**	**4/1/05**	**11/9/05**
21		Geometry and Layout	80%	4/1/05	5/5/05
22		FEA	67%	5/5/05	5/23/05
23		Specify Manufacturing Processes	80%	5/23/05	6/1/05
24		Wedge Plates	60%	6/1/05	6/20/05
25		Hexapod Interface Hub	60%	6/20/05	7/12/05
26		Grounding and Electrical Isolation	30%	7/12/05	7/28/05
27		Telephone Poles	35%	7/28/05	8/16/05
28		Alignment Target Balls	70%	8/16/05	8/24/05
29		QuarterSphere Links	60%	8/23/05	9/14/05
30		**Lvl 3: Quartersphere Design Complete**	0%	9/14/05	9/14/05
31		**Fabrication Prints**	**0%**	**9/14/05**	**11/9/05**
32		Quarter Spheres	0%	9/14/05	10/24/05
33		Grounding and Electrical Isolation	0%	10/24/05	11/1/05
34		Telephone Poles	0%	11/1/05	11/9/05
35		**Translation and Rotation**	**72%**	**4/1/05**	**11/2/05**
36		Layout	100%	4/1/05	4/29/05
37		Tee Platform	20%	4/29/05	6/6/05
38		Bearing Housing	30%	6/6/05	6/20/05
39		Axles	15%	6/20/05	7/26/05
40		Lower Strut Clips	100%	7/26/05	10/21/05
41		Upper strut clips	100%	8/29/05	10/21/05
42		RR Car mods - dwg & descr.	20%	9/9/05	11/2/05
43		Strut drawing (tabulated)	100%	9/23/05	10/4/05
44		Design Review	0%	10/12/05	11/9/05
45		**Lvl 2: Complete Design and Drawings of Mech Support Structure**	0%	12/22/05	12/22/05



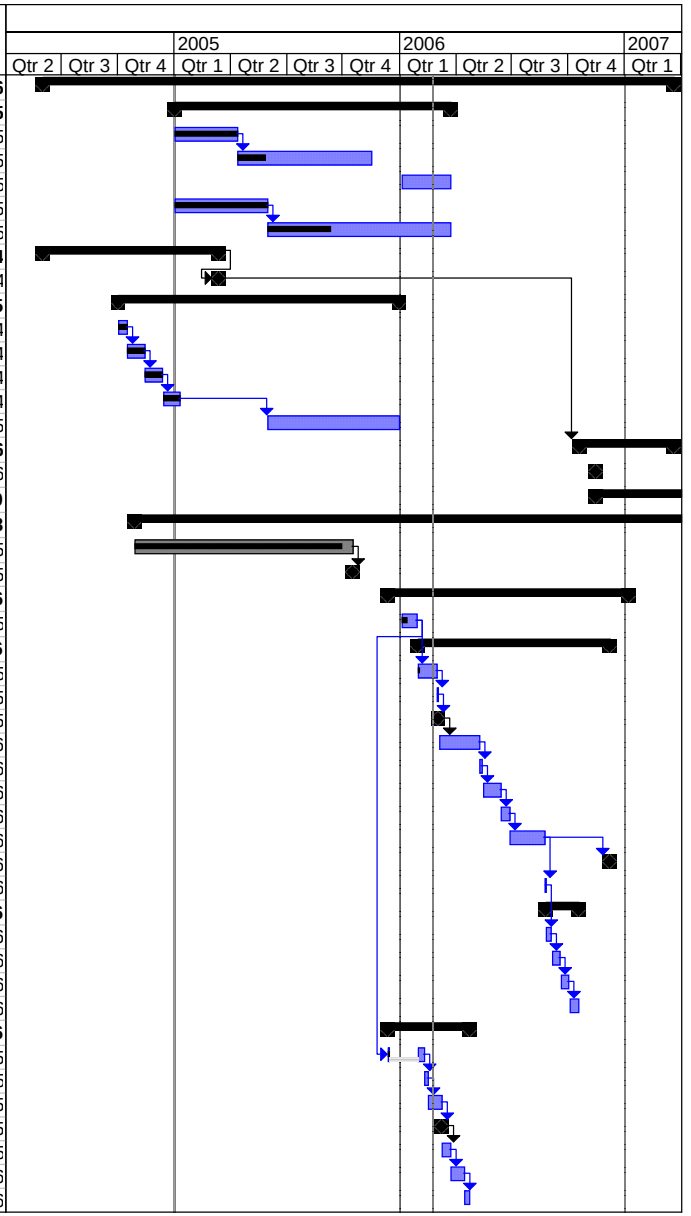
GRETINA Schedule October 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
46	**1.1.2.2**	**Detector installation tool**	10%	**11/9/05**	**1/17/06**
47	**1.1.2.3**	**Target chamber Washington Univ.**	**28%**	**4/1/05**	**10/13/05**
48		Define requirements	50%	4/1/05	6/22/05
49		Design Specifications	50%	6/23/05	7/19/05
50		Conceptual design	0%	7/20/05	8/2/05
51		Conceptual design review	0%	8/3/05	8/12/05
52		Final design	0%	8/15/05	9/2/05
53		Final design review	0%	9/6/05	9/15/05
54		Detail Dwgs	0%	9/16/05	10/13/05
55		**Lvl 4:Target Chamber Design Complete**	0%	10/13/05	10/13/05
56	**1.1.2.4**	**LN system**	**37%**	**4/1/05**	**11/4/05**
57		Define requirements/specifications	100%	4/1/05	7/29/05
58		**Mechanical**	**12%**	**8/1/05**	**11/4/05**
59		Conceptual design	50%	8/1/05	8/23/05
60		LN Interface	0%	8/24/05	9/7/05
61		Final design	0%	9/8/05	9/30/05
62		Detail Dwgs	0%	10/3/05	11/4/05
63		**Lvl 4: LN System Mech Design Complete**	0%	11/4/05	11/4/05
64		Electrical	0%	7/18/05	9/21/05
65		Computer control	0%	7/18/05	9/21/05
66	**1.1.3**	**Production**	**0%**	**7/11/07**	**4/3/08**
100		**Lvl 2: Mechanical Production Complete**	0%	4/3/08	4/3/08
101	**1.2**	**Detector Module**	**21%**	**3/1/04**	**9/9/09**
102	**1.2.1**	**Purchasing**	**11%**	**10/11/04**	**6/12/09**
103	**1.2.1.1**	**Detector requirements and procurement specs**	**97%**	**10/11/04**	**6/22/05**
104		Write Detector requirements	100%	10/11/04	1/5/05
105		Define interfaces	100%	1/6/05	4/1/05
106		Define Interfaces ETC	100%	4/4/05	4/4/05
107		Write procurement specification	100%	4/5/05	5/9/05
108		**Lvl 3: Detector Procure Spec Complete**	100%	5/9/05	5/9/05
109		Receive bids	50%	5/10/05	5/23/05
110		**LvL 1: CD 2/3A**	100%	6/22/05	6/22/05
111	**1.2.1.2**	**Detector Procurement**	**3%**	**2/15/05**	**6/12/09**
112		Detector Design Contract	100%	2/15/05	5/9/05
113		**Lvl 3: Detector Module Drawings Comp**	95%	5/9/05	5/9/05
114		**FY05: Detector Module 1**	**0%**	**9/30/05**	**7/19/06**
115		**LvL 2: Award Contract Module 1**	100%	9/30/05	9/30/05
116		Module 1 Fab and Delivery	0%	9/30/05	7/18/06
117		Flat Procurement Burden	0%	7/19/06	7/19/06
118		**FY06: Dectector Module 2**	**0%**	**9/12/06**	**9/14/07**
121		**FY07: Dectector Module 3, 4 & 5**	**0%**	**1/26/07**	**10/16/08**
126		**FY08: Dectector Module 6 & 7**	**0%**	**2/1/08**	**2/13/09**
130		**FY09: Detector Module 7 (Final)**	**0%**	**1/30/09**	**6/12/09**



GRETINA Schedule October 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
133	**1.2.2**	**Test/Characterize Module 1**	**48%**	**3/1/04**	**12/19/06**
134	**1.2.2.1**	**Detector Engineering and Test**	**46%**	**10/1/04**	**12/22/05**
135		Detector Engineer (FY05)	100%	10/1/04	1/11/05
136		Detector Eng ETC	20%	1/11/05	8/16/05
137		Detector Engineer (FY06)	0%	10/3/05	12/22/05
138		Detector Testing	100%	10/1/04	2/28/05
139		Detector Testing ETC	35%	3/1/05	12/22/05
140	**1.2.2.2**	**Develop test procedures and apparatus**	**100%**	**3/1/04**	**12/10/04**
152		**Lvl 2: Detector Test Procedures and Apparatus Com**	100%	12/10/04	12/10/04
153	**1.2.2.3**	**Develop database**	**32%**	**7/1/04**	**9/29/05**
154		Define database requirements	100%	7/1/04	7/15/04
155		Define backup and recovery	100%	7/16/04	8/12/04
156		Select and procure package	100%	8/13/04	9/10/04
157		Customize System	100%	9/13/04	10/8/04
158		Contine support	0%	3/1/05	9/29/05
159	**1.2.2.4**	**Test/characterize Module 1**	**0%**	**7/19/06**	**12/19/06**
164		**Lvl 2: Complete Mod 1 Acceptance Test**	0%	8/15/06	8/15/06
165	**1.2.3**	**Test/Char Mod 2 thru 7**	**0%**	**8/15/06**	**9/9/09**
207	**1.3**	**Electronics**	**18%**	**7/28/04**	**8/13/08**
208	**1.3.1**	Requirement document	95%	7/28/04	7/15/05
209		**Lvl 3: Elec Req. Doc Complete**	0%	7/15/05	7/15/05
210	**1.3.2**	**Electronics Prototype**	**2%**	**9/12/05**	**10/6/06**
211	**1.3.2.1**	System Architecture	40%	10/3/05	10/28/05
212	**1.3.2.3**	**Digital signal processing module**	**1%**	**10/31/05**	**9/6/06**
213		Write requirements and spec documents	10%	10/31/05	11/29/05
214		Review	0%	11/30/05	12/2/05
215		**Lvl 3: DSP Req & Spec Complete**	0%	12/2/05	12/2/05
216		Design and layout	0%	12/5/05	2/7/06
217		Review	0%	2/8/06	2/10/06
218		Procure and assembly	0%	2/14/06	3/13/06
219		Material procured	0%	3/14/06	3/27/06
220		Test	0%	3/28/06	5/22/06
221		**Lvl 2: Complete Test of DSP Proto Mod.**	0%	9/6/06	9/6/06
222		Continue support	0%	5/23/06	5/25/06
223		**Test Stand**	**0%**	**5/26/06**	**7/17/06**
224		Write requirements and specification documents	0%	5/26/06	6/2/06
225		Design	0%	6/5/06	6/16/06
226		Procure and assembly	0%	6/19/06	6/30/06
227		Material procured	0%	7/3/06	7/17/06
228	**1.3.2.4**	**Cables**	**2%**	**9/12/05**	**1/20/06**
229		Write requirements and specification documents	5%	9/12/05	11/9/05
230		Review	0%	11/10/05	11/14/05
231		Design	0%	11/15/05	12/7/05
232		**Lvl 3: Elec Proto Cable Design Complete**	0%	12/7/05	12/7/05
233		Procure and assembly	0%	12/8/05	12/21/05
234		Material procured	0%	12/22/05	1/12/06
235		Test	0%	1/13/06	1/20/06



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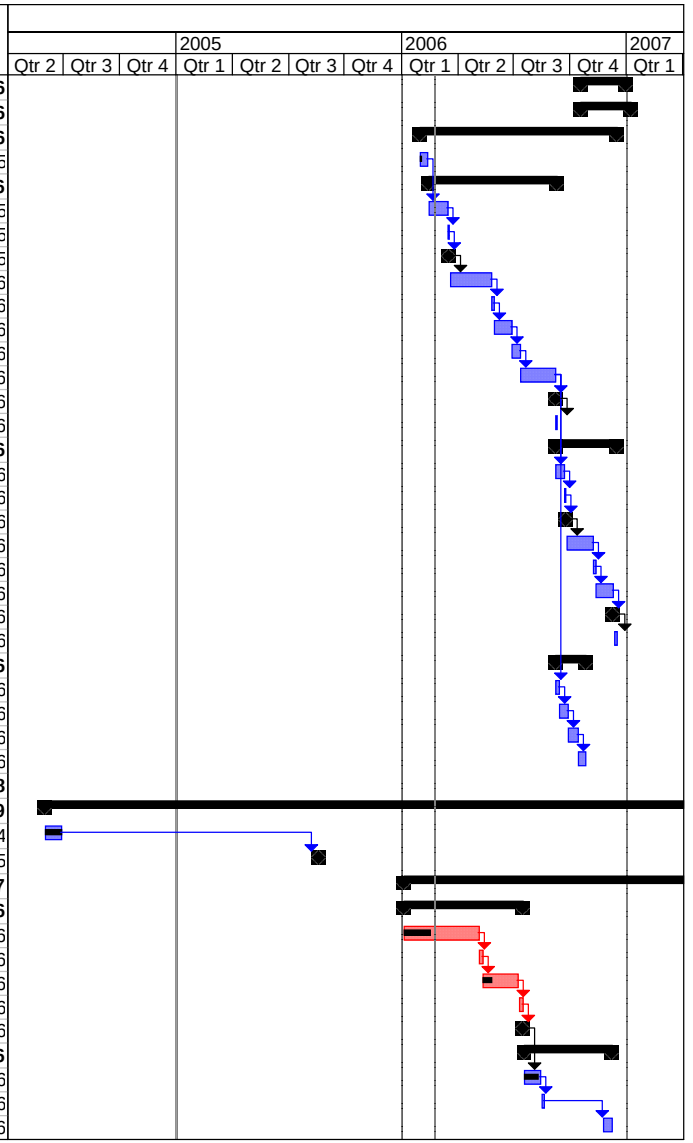
ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
236	**1.3.2.5**	**Crates**	**0%**	**7/18/06**	**9/29/06**
243	**1.3.2.6**	**Power supplies (low and high voltage)**	**0%**	**7/18/06**	**10/6/06**
252	**1.3.2.7**	**Trigger and Timing**	**1%**	**10/31/05**	**9/13/06**
253		Write requirements documents of local and global tri	15%	10/31/05	11/11/05
254		**Local trigger and timing**	**0%**	**11/14/05**	**6/9/06**
255		Write requirements and specification documents	0%	11/14/05	12/13/05
256		Review	0%	12/14/05	12/16/05
257		**Lvl 4: Elec Proto Local Trigger/Timing Req & S**	0%	12/16/05	12/16/05
258		Design and layout	0%	12/19/05	2/22/06
259		Review	0%	2/23/06	2/27/06
260		Procure and assembly	0%	2/28/06	3/27/06
261		Material procured	0%	3/28/06	4/10/06
262		Test	0%	4/11/06	6/6/06
263		**Lvl 3: Elec Proto Test of Local Trigger/Timing**	0%	6/6/06	6/6/06
264		Continue support	0%	6/7/06	6/9/06
265		**Global trigger and timing**	**0%**	**6/7/06**	**9/13/06**
266		Write requirements and specification documents	0%	6/7/06	6/20/06
267		Review	0%	6/21/06	6/23/06
268		**Lvl 4: Elec Prorto Global Trigger/Timing Req &**	0%	6/23/06	6/23/06
269		Design	0%	6/26/06	8/7/06
270		Review	0%	8/8/06	8/10/06
271		Test	0%	8/11/06	9/8/06
272		**Lvl 3: Elec Proto Test of Global Trigger/Timing**	0%	9/8/06	9/8/06
273		Continue support	0%	9/11/06	9/13/06
274		**Test Stand**	**0%**	**6/7/06**	**7/26/06**
275		Write requirements and specification documents	0%	6/7/06	6/13/06
276		Design	0%	6/14/06	6/27/06
277		Procure and assembly	0%	6/28/06	7/12/06
278		Material procured	0%	7/13/06	7/26/06
279	**1.3.3**	**Electronics Production**	**0%**	**7/11/07**	**8/13/08**
340	**1.4**	**Computing Systems**	**4%**	**3/1/04**	**4/7/09**
341	**1.4.1**	Requirement document	100%	3/1/04	3/26/04
342		**Lvl 3: Computing Req Doc Complete**	100%	5/18/05	5/18/05
343	**1.4.2**	**CS Prototype**	**8%**	**10/3/05**	**2/6/07**
344	**1.4.2.1**	**System Architecture**	**31%**	**10/3/05**	**4/14/06**
345		Develop Requirements & Specifications	40%	10/3/05	2/2/06
346		Requirements Review	0%	2/3/06	2/9/06
347		Design & Document	20%	2/10/06	4/7/06
348		Design Review	0%	4/10/06	4/14/06
349		**Lvl 3: System Architecture Complete**	0%	4/14/06	4/14/06
350	**1.4.2.2**	**DAQ Specifications and design**	**46%**	**4/17/06**	**9/6/06**
351		Design acquisition system (hw, net, servers)	80%	4/17/06	5/12/06
352		Design Review	0%	5/15/06	5/19/06
353		Design specifications for procurement	0%	8/23/06	9/6/06



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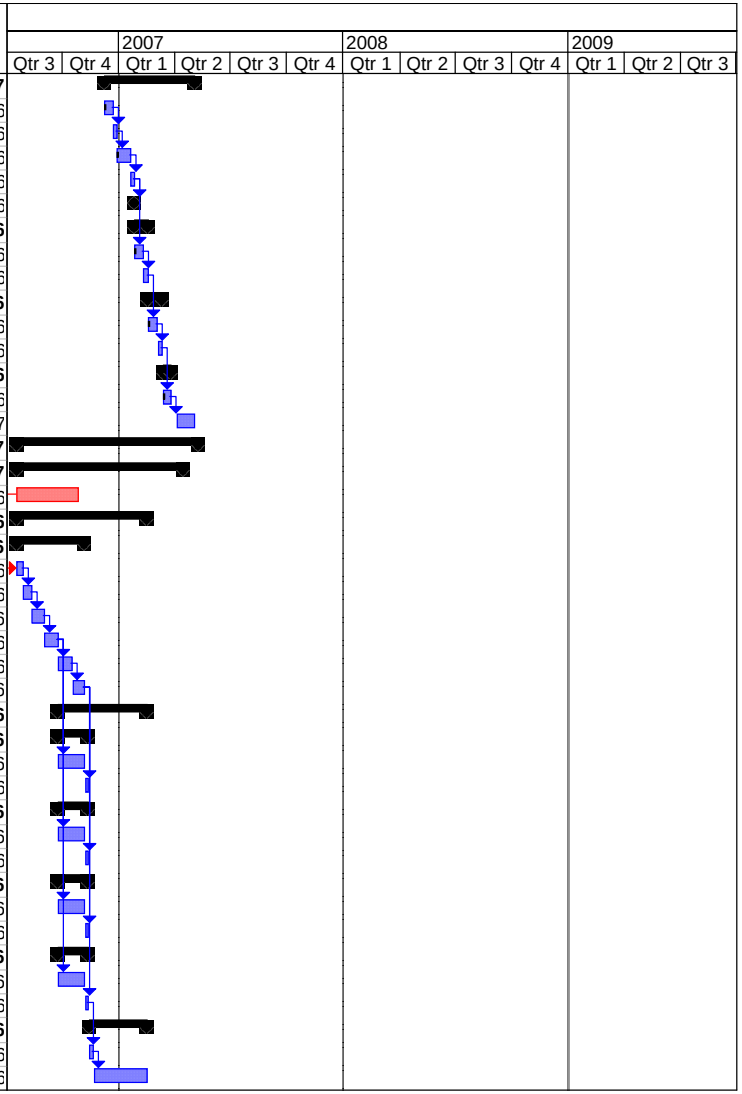
ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
354	**1.4.2.3**	**Event Building**	**6%**	**9/7/06**	**1/30/07**
355		Design Requirements & Specifications	10%	9/7/06	9/20/06
356		Requirements Review	0%	9/21/06	9/27/06
357		Design Design & Document (incl test procedur	10%	9/28/06	10/18/06
358		Design Review	0%	10/19/06	10/25/06
359		**Lvl 4: Event Building Design Complete**	0%	10/25/06	10/25/06
360		**Event Sender**	**7%**	**10/26/06**	**11/15/06**
361		Write Code	10%	10/26/06	11/8/06
362		Low Level Debug (master trig)	0%	11/9/06	11/15/06
363		**Event Receiver**	**7%**	**11/16/06**	**12/8/06**
364		Write Code	10%	11/16/06	12/1/06
365		Low Level Debug (DAQ, Trigger)	0%	12/4/06	12/8/06
366		**Master Event Handler**	**10%**	**12/11/06**	**12/22/06**
367		Write Code	10%	12/11/06	12/22/06
368		Integrate, Test & Debug	0%	1/2/07	1/30/07
369	**1.4.2.4**	**Event Processing**	**1%**	**4/17/06**	**2/6/07**
370		**Signal Decomposition**	**1%**	**4/17/06**	**1/11/07**
371		Signal shape parameterization	0%	4/17/06	7/25/06
372		**Design and refine algorithm**	**0%**	**4/17/06**	**11/13/06**
373		**Develop Metrics**	**0%**	**4/17/06**	**8/4/06**
374		Input/Output Format Spec	0%	4/17/06	4/26/06
375		Basis Waveforms	0%	4/27/06	5/10/06
376		Ideal Example Data	0%	5/11/06	6/1/06
377		Real Example Data	0%	6/2/06	6/22/06
378		Common Failure Examples	0%	6/23/06	7/14/06
379		Benchmark Procedures	0%	7/17/06	8/4/06
380		**Evaluate and Refine algorithm**	**0%**	**6/23/06**	**11/13/06**
381		**Adaptive Grid Search**	**0%**	**6/23/06**	**8/11/06**
382		Code	0%	6/23/06	8/4/06
383		Benchmark	0%	8/7/06	8/11/06
384		**Singular Value Decomp**	**0%**	**6/23/06**	**8/11/06**
385		Code	0%	6/23/06	8/4/06
386		Benchmark	0%	8/7/06	8/11/06
387		**Sequential Quadratic Progressior**	**0%**	**6/23/06**	**8/11/06**
388		Code	0%	6/23/06	8/4/06
389		Benchmark	0%	8/7/06	8/11/06
390		**Others**	**0%**	**6/23/06**	**8/11/06**
391		Code	0%	6/23/06	8/4/06
392		Benchmark	0%	8/7/06	8/11/06
393		**Algorithm Integration**	**0%**	**8/14/06**	**11/13/06**
394		Select Algorithms	0%	8/14/06	8/18/06
395		Combine Code	0%	8/21/06	11/13/06



GRETINA Schedule October 2005

ID	Work Breakdown Ref	Task Name	% Complete	Start	Finish
396	**1.4.2.4**	**Design Interface Program**	**7%**	**5/22/06**	**1/11/07**
397		Write Interface Specs	20%	5/22/06	6/5/06
398		Review	0%	6/6/06	6/19/06
399		Write Code	20%	6/20/06	7/11/06
400		Test & Debug	0%	11/14/06	1/11/07
401		**Lvl 4: Signal Decomposition prototyp**	0%	1/11/07	1/11/07
402		**Tracking**	**0%**	**5/22/06**	**2/6/07**
416		**Data Storage**	**0%**	**7/12/06**	**9/13/06**
423		Integrate, Test & Debug	0%	9/14/06	9/27/06
424		**Lvl 3: CS Proto Event Processing Complete**	0%	2/6/07	2/6/07
425	**1.4.2.5**	**Hardware**	**18%**	**9/7/06**	**11/9/06**
426		**Digitizer Readout Computers**	**38%**	**9/7/06**	**11/1/06**
427		Procurement 2 cpu	50%	9/7/06	10/18/06
428		Boot Configuration	0%	10/19/06	11/1/06
429		**Network Equipment (switches, firewall)**	**0%**	**9/7/06**	**11/9/06**
430		Procurement	0%	9/7/06	9/13/06
431		Installation & Configuration	0%	11/8/06	11/9/06
432		**Server**	**0%**	**9/7/06**	**10/25/06**
433		Procurement	0%	9/7/06	9/12/06
434		Installation & Configuration	0%	10/24/06	10/25/06
435		**Workstations (2)**	**0%**	**9/7/06**	**9/14/06**
436		Procurement	0%	9/7/06	9/12/06
437		Installation & Configuration	0%	9/12/06	9/14/06
438		**Processor farm (2 dual cpus)**	**0%**	**9/7/06**	**10/24/06**
439		Procurement	0%	9/7/06	9/20/06
440		Installation & Configuration	0%	10/23/06	10/24/06
441		**Lvl 4: CS Proto Processer Farm Comple**	0%	10/24/06	10/24/06
442		Misc PCs	0%	9/7/06	9/27/06
443	**1.4.2.6**	**Slow control/monitoring**	**0%**	**9/7/06**	**1/30/07**
455	**1.4.3**	**CS Production**	**0%**	**8/14/07**	**4/7/09**
558	**1.5**	**System Assembly**	**0%**	**4/4/07**	**9/16/10**
612	**1.6**	**Project Management**	**23%**	**3/1/04**	**9/16/10**
613	**1.6.1**	**Management**	**22%**	**3/1/04**	**9/16/10**
614	**1.6.1.1**	**Initial phase (FY04-FY05)**	**100%**	**3/1/04**	**9/30/05**
624	**1.6.1.2**	**Long term**	**2%**	**10/3/05**	**9/30/09**
625		Contractor Project Manager	2%	10/3/05	9/30/09
626		Project Engineer	2%	10/3/05	9/30/09
627		Project Control Analyst	2%	10/3/05	9/30/09
628	**1.6.1.3**	**Final phase (~0.5 of FY10)**	**0%**	**10/1/09**	**9/16/10**
633	**1.6.1.4**	Quality Assurance Manager	10%	4/1/05	12/22/09
634	**1.6.1.5**	**Subsystem Managers**	**21%**	**3/1/04**	**11/3/09**
642	**1.6.2**	**General Project Expenses**	**25%**	**3/1/04**	**4/15/10**
659	**1.7**	**Environment and Safety**	**42%**	**3/1/04**	**2/1/10**
660	**1.7.1**	**Perform safety analysis of all subsystems**	**45%**	**3/1/04**	**4/14/09**
675	**1.7.2**	**Conduct global safety review**	**0%**	**1/26/10**	**2/1/10**